



Standard Test Method for Efficacy of Solvent Systems for Dissolving Water-Formed Deposits¹

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1. Scope

1.1 This test method covers the determination of the efficacy of solvent systems for dissolving either water-formed deposits that have been removed from the underlying material or synthetically prepared deposits.

1.2 The nature of this test method is such that statements of precision and bias as determined by round robin tests could mislead users of the test method (see Sections 11 and 12). Therefore, no precision and bias statements are made.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 887 Practices for Sampling Water-Formed Deposits²
- D 1129 Terminology Relating to Water³
- D 1193 Specification for Reagent Water³
- D 2777 Practice for Determination of Precision and Bias of Applicable Methods of Committee D-19 on Water³
- D 2790 Methods of Analysis of Solvent Systems Used for Removal of Water-Formed Deposits⁴
- D 3263 Test Methods for Corrosivity of Solvent Systems for Removing Water-Formed Deposits²
- D 3483 Test Methods for Accumulated Deposition in a Steam Generator Tube²

3. Terminology

3.1 Definitions:

3.1.1 *water-formed deposits (Note 1)*—any accumulation of insoluble material derived from water or formed by the reaction of water upon the surface in contact with the water.

NOTE 1—Deposits formed from or by water in all its phases may be further classified as scale, sludge, corrosion products, or biological

deposits. The overall composition of a deposit or some part of a deposit may be determined by chemical or spectrographic analysis; the constituents actually present as chemical substances may be identified by microscope or X-ray diffraction studies. Organisms may be identified by microscopical or biological methods.

3.1.2 For definitions of other terms used in this test method, refer to Terminology D 1129.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *solvent system*—specified chemicals or combinations of chemicals that may include corrosion inhibitors, formulated to react with and remove deposits.

3.2.2 *single and multiple solvent systems*—a single solvent system is a one-solution treatment. A multiple solvent system is a treatment using two or more solutions in sequence.

4. Summary of Test Method

4.1 This test method determines the ability of solvent systems to dissolve deposits.

4.2 This test method consists of exposing weighed amounts of deposits to solvent systems and determining the weight loss of the exposed deposit, thereby determining the efficacy of the solvent system.

5. Significance and Use

5.1 This test method is useful because the choice of a solvent system for removing water-formed deposits depends primarily upon the ability of the solvent system to dissolve the deposit. It is used for evaluating solvent systems on water-formed deposits that have been removed from the underlying material.

6. Apparatus

6.1 *Balance*—Capable of weighing to the nearest 0.1 mg.

6.2 *Constant Temperature Bath*—Thermostatically controlled to $\pm 1^\circ\text{C}$ ($\pm 2^\circ\text{F}$) and provided with suitable openings and supports for the test containers.

6.3 *Test Containers*—Tall form, 220-mL, lipless, polypropylene beakers. They shall be fitted with tight covers. A small slit (approximately 13 mm ($\frac{1}{2}$ in.) in length) shall be made in each cover.

6.4 *Glass Filter Crucibles*—Gooch 30-mL low form coarse fritted disk crucibles.

6.5 *Vacuum Oven*, for drying residual deposits.

6.6 *Desiccator*.

6.7 *Mild Steel Coupon*—A clean, mild steel coupon, nominally 25 by 50 by 1.5 mm (1 by 2 by $\frac{1}{16}$ in.) used for

¹ This test method is under the jurisdiction of ASTM Committee D-19 on Water and is the direct responsibility of Subcommittee D19.03 on Sampling of Water and Water-Formed Deposits, Surveillance of Water, and Flow Measurement of Water.

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² Annual Book of ASTM Standards, Vol 11.02.

³ Annual Book of ASTM Standards, Vol 11.01.

⁴ Discontinued; see 1993 Annual Book of ASTM Standards, Vol 11.02.